REMARKS

Claims 15, 17, 18, and 19 are now pending in the application. Claim 16 has been cancelled. Minor amendments have been made to the claims to simply overcome the objections to the specification and rejections of the claims under 35 U.S.C. § 112. The amendments to the claims contained herein are at least of equivalent scope as previously set forth and thus, are not considered to be a narrowing amendment. The Examiner is respectfully requested to reconsider and withdraw the rejection(s) in view of the amendments and remarks contained herein.

SUMMARY OF EXAMINER'S REJECTIONS

In the Office Action dated January 21, 2004, the Examiner has:

(i) objected to claim 19 as being informal (in paragraph 1 of the Office Action);

(ii) rejected claims 15-19 (particularly claim 15) under 35 USC §112 as failing to comply with the written description requirement because claim 15 contains subject matter which was not described in the specification (in paragraph 3 of the Office Action);

(iii) rejected claims 15-19 (particularly claim 15) under 35 USC §112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention (in paragraph 5 of the Office Action);

(iv) rejected claims 15 and 19 under 35 USC §102(b) (or §103(a)) as being anticipated by (or obvious over) U.S. Patent No. 3,750,494 (Rice) (in paragraph 7 of the Office Action); and

(v) rejected claims 15-19 as being unpatentable over Rice, over British Patent No. 608,048 ('048) in view of U.S. Patent No. 5,243,869 (Kukowski), or over U.S. Patent No. 4,896,560 (Kato) in view of '048 (in paragraphs 9-11 of the Office Action).

DETAILED RESPONSE TO THE REJECTIONS

The applicant has amended the claims in view of the Examiner's objection/rejections and explains herein below how the inventions of the amended claims are patentable over the cited references.

First, in view of the objection raised by the Examiner in paragraph 1 of the Office Action, the applicant has amended claim 19 to correct the phrase "to process an object" to --which is the object to be processed--. This amendment should suffice in overcoming the Examiner's objection.

Next, in view of the rejections raised by the Examiner in paragraphs 3 and 5 of the Office Action, the applicant has amended claim 15 to delete the phrases "while said rotating table is stopped" and "wherein oscillation of said rotating table in the stopped position is promptly attenuated". Since the basis of the Examiner's rejections have been deleted, the applicant believes that the rejections in paragraphs 3 and 5 of the Office Action have been overcome.

In view of the anticipation/obviousness issues raised by the Examiner in paragraphs 7-11 of the Office Action, applicant has amended claim 15 so that it now contains the limitation "said space is between 0.005 mm and 0.2 mm" of claim 16 (now cancelled). The invention according to amended claim 15 is now patentable over U.S.

Patent No. 3,750,494 (Rice) as well as British Patent No. 608,048 ('048) for the reasons set forth below.

First of all, the applicant would like to respectfully point out that, although the Examiner has stated in the Office Action that, in Rice, "the housing 22 ... has an upper surface that 'opposes' an end surface of the table to create a space there between, labeled 'Space 2'", this Space 2 in Rice is between the upper surface 26 of the case 22 and the upper surface of the table 11, and therefore, is not "[the] space between said opposing surface and said end surface [of the rotating table]" according to present claim 15. Rather, in Rice, "[the] space between said opposing surface and said end surface [of the rotating table]" and to which "said oil flows" according to present claim 15 would be between the lower surface of the cam blocks 14 (which can be made integral with the table 11, as explicitly stated in Rice) and the upper surface 26 of the case 22.

Now, turning to Rice, it is disclosed in Rice that "[the] case 22 also provides bearing support at surfaces 26 for cam blocks 14 which in turn supports the loading of the table". (Please refer to Col. 4, lines 47-49, and Fig. 2.) In other words, in Rice, the surfaces 26 directly receive the loading of the table via the cam blocks 14. (It is these surfaces 26 that are lubricated by the lubricant.) Since the surfaces 26 serve to receive the load from the table, there could not be any space between the surfaces 26 and the cam blocks 14 (and this is apparent also from Fig. 2). Therefore, Rice could not, and does not, teach the structure in which the "space is between 0.005 mm and 0.2 mm", and therefore, claim 15 is not anticipated or rendered obvious by Rice alone or in combination with other references of record.

With a structure in which there is no space between the surfaces 26 and the cam blocks 14, the oscillation of the table 11 will be directly transmitted to the case 22. Therefore, according to Rice, the lubricant at the surfaces 26 could not function as a damper for attenuating the oscillation between the table 11 and the case 22. Consequently, according to Rice which provides no space between the surfaces 26 and the cam blocks 14 (i.e., no space between the opposing surface and the end surface of the table), it is not possible to obtain the damping effects that are provided by the present invention.

Now, the applicant would like to consider how damping effects can be obtained. In order to obtain a damping effect, it is necessary for the damping coefficient to be large. This damping coefficient c is expressed as:

$$\mathbf{c = \mu A/h},$$

wherein the space is **h**, the coefficient of viscosity of the oil is μ, and the surface area to which the oil contacts is **A**. From this equation, it can be said that if the space is too large, then it is not possible to obtain a damping effect, whereas if the space is sufficiently small, it becomes possible to obtain a sufficient damping effect. As stated above, however, no damping effect is achieved if there is no space at all.

Turning now to present claim 15, the space into which the oil of the gap portion flows is between 0.005 mm and 0.2 mm. This space is narrow enough for the oil in that space to function as a damper, and therefore, it is possible to obtain damping effects with oil in that space.

Meanwhile, according to Rice, there is no space between the surfaces 26 and the cam blocks 14 (i.e., between the opposing surface and the end surface of the table),

as described above. This is because the lubricant in this space is only intended for lubrication, and not for damping. Thus, a person skilled in the art would not come up with the idea of making this space h large so as to increase the damping coefficient c to obtain a damping effect. Therefore, the structure regarding "[the] space [being] between 0.005 mm and 0.2 mm" according to present claim 15 would not be obvious to a person skilled in the art over Rice.

Please note that, it would also not be possible to assume the space between the lower surface of the table 11 and the inner surface of the case 22 of Rice (shown as "SPACE 3" in Fig. 2 attached below) as "[the] space between said opposing surface and said end surface [of the rotating table]" and to which "said oil flows" according to present claim 15. This is because the lubricant (shown by hatching) in SPACE 3 will not be filled up to the lower surface of the table 11, since "30" in Fig. 2 is an air gap and this air gap 30 would never be filled with lubricant. Furthermore, even if it were possible to assume SPACE 3 as "[the] space between said opposing surface and said end surface [of the rotating table]" according to present claim 15, this space would be too large to provide a sufficient damping effect.

Furthermore, '048 teaches a space (chamber) 24 between the lower surface of a plate 1 and a nut 9. However, '048 does not teach this chamber 24 to be between 0.005 mm and 0.2 mm. According to '048, the chamber is too large. More specifically, according to '048, the plate 1 engages a ring-shaped member 8 without any play, and this chamber 24 functions to supply oil, as a lubricant, between the plate 1 and the member 8. For this reason, it is necessary to make the space of the chamber 24 large enough so that the chamber 24 is able to supply the oil sufficiently to the place where

lubrication is required. Since the space of the chamber 24 of '048 is large, the oil therein cannot function as a damper. Further, a person skilled in the art would not come up with the idea of making the space h of the chamber 24 small so as to increase the damping coefficient c to obtain a damping effect, because the chamber 24 is intended only for supplying lubricant between the plate 1 and the member 8. Therefore, the structure regarding "[the] space [being] between 0.005 mm and 0.2 mm" according to present claim 15 would not be obvious to a person skilled in the art over '048.

According to the above, the applicant believes that present claim 15 is neither anticipated by nor obvious over Rice and '048 and is therefore patentable. Dependent claims 17-20 are also believed to be equally patentable.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the

Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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